

Work Order ID 117895

\*117895\*

Page 1

May-05-14 11:47:21 AM

Item ID: D2576-1

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Step (Casting Detail)

Start Date: 5/21/14 Start Qty: 50.00

\*50\*

Cust Item ID:

Required Date: 5/21/14 Req'd Qty: 50.00

\*50\*

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 14-05-07

Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2576	Rev G

100 PURCHASING 0.00

\*100\*

Purchasing

Memo

0.00

Purchasing

Issue P/O: 24153 Cast per D2576-1 Pattern vendor: Alpine Non-Ferrous Material Release Note Required

CL 14/05/09 SO

110 Receive & Inspect for Damage & Mat'l Certs 0.00

\*110\*

Packaging

Memo

0.00

Packaging

Ensure D2576 mould is returned with the ordered parts Ensure release note is attached

SO SP14-6-4

120 QC6- Inspect dimensions to drawing 0.00

\*120\*

QC

Memo

0.00

Quality Control

DAS

27  
3-89

14/6/15

SO

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width:100%; border: none;"> <tr> <td style="width:25%;">Skid-tube <input type="checkbox"/></td> <td style="width:25%;">Crosstube <input type="checkbox"/></td> <td style="width:25%;">Water Jet <input type="checkbox"/></td> <td style="width:25%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
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Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		
<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other		

Work Order ID 117895

May-05-14 11:47:21 AM

\*117895\*

Page 2

Item ID: D2576-1

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Step (Casting Detail)

Start Date: 5/21/14 Start Qty: 50.00

\*50\*

Cust Item ID:

Required Date: 5/21/14 Req'd Qty: 50.00

\*50\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>LG</u>	0.00							
<b>*130*</b>									
Packaging	Memo	0.00				50	0		
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
<b>*140*</b>									
QC	Memo	0.00							
Quality Control									

MLJ 14-07-02

14-6-30

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
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Supplier									
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### FAULT CATEGORY

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# Picklist Print

May-05-14 11:47:19 AM

Page 1

Work Order ID: 117895

**\*117895\***

Parent Item: D2576-1

**\*D2576-1\***

Parent Item Name: Step (Casting Detail)

Start Date: 5/21/14

Required Date: 5/21/14

Start Qty: 50.00

Required Qty: 50.00

Comments: IPP Rev: A New Issue 05-11-29 JLM  
IPP rev B rev F dwg 07.07.06 EC  
IPP Rev:C As per Rev G 07-09-05 JLM Verified By:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2576-1P		Purchased		No		100	Each	0.0000	1	50			

**\*D2576-1P\***  
Step (Casting Detail)

**\*\***

50x 8p14-6-4.

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

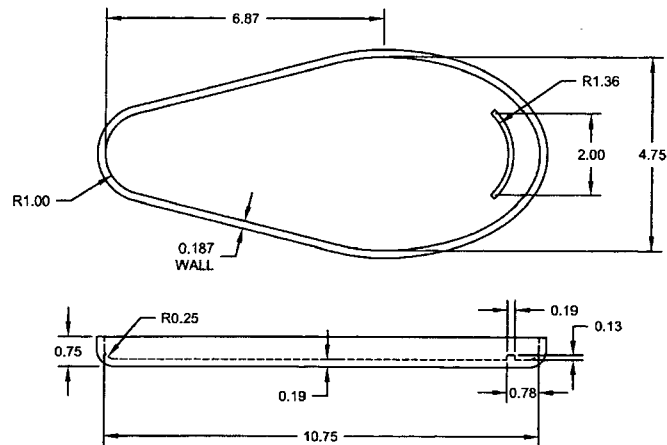
Work Order update only ☐

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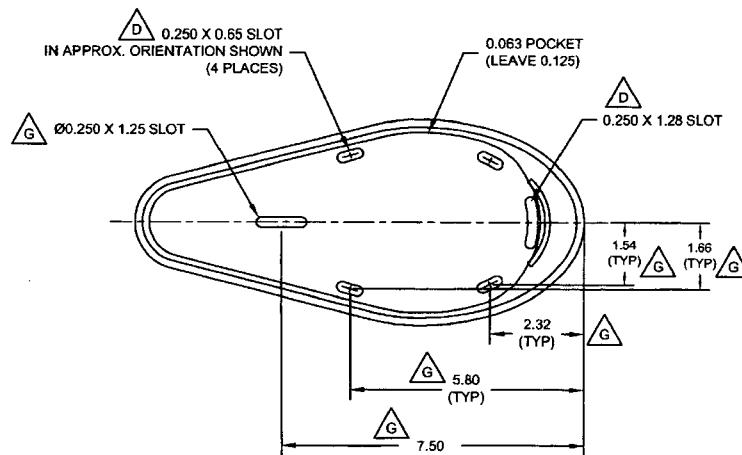
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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
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**D2576-1 CASTING**



**D2576-3 MACHINING DETAIL**  
(MAKE FROM D2576-1)

**NOTES:**

- 1) MATERIAL: CAST ALUMINUM ALLOY A-535.2
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.025 TO 0.050 MAX
- 6) IDENTIFICATION: NONE

117895 MJS  
14-05-07

**RELEASED**

07.08.29

G	- CHANGE SLOTS LOCATION AND SIZE ON D2576-3 - DUE TO SKID BENDING PROGRAM CHANGES - UPDATE CNC PROGRAM	MB	07.08.15
F	7.05 WAS 6.61	PH	07.04.17
E	CHANGE 0.50 HOLE LOCATION AND ADD NOTE	RF	99.09.07
D	CHANGE SLOT SIZE AND LOCATION (TSR A1069)	CP	99.08.18
C	ADD POCKETS AND SLOTS FOR WELDING	DS	98.08.18
B	REMOVE POCKETS, ADD HOLE	DS	96.11.28
A	NEW ISSUE	DS	96.09.18
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>[Signature]</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>[Signature]</i>		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>[Signature]</i>	D2576	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	STEP	1:3
DATE	07.08.15	<small>COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO24153**

Purchase Order Date 5/9/2014

PO Print Date 5/9/2014

Page Number 1 of 2

**Order From :**

VC-ALP001

ALPINE NON-FERROUS FOUNDRY  
8657 - 132ND STREET  
SURREY, BC V3W 4P1  
CA

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

FORMED  
6/1/14 10:50:09

**Contact Name**

**Vendor Phone**

604 596 8080

**Ship To Contact**

**Ship To Phone**

**Ship Via:**

FedEx PI collect

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #**

10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D2576-1P  AS PER DWG D2576 REV. G B117895	Step (Casting Detail)	5/23/2014 Yes 5/23/2014		50.00 Each	\$17.75	\$887.5
						<b>Line Total:</b>	<b>\$887.5</b>
2	71401-45  PROCUREMENT QUALITY CLAUSES A005 RIGHT OF ENTRY A012 CHEMICAL AND PHYSICAL TEST REPORTS A016 PERSONNEL QUALIFICATION A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE) A026 CERTIFICATION OF MATERIAL CONFORMANCE A040 NOTIFICATION OF QUALITY ESCAPE A041 QUALITY MANAGEMENT SYSTEM A042 DART NOTIFICATION BY SUPPLIER A043 RETENTION OF QUALITY DOCUMENTS	PROCUREMENT QUALITY CLAUSES	5/23/2014 No 5/23/2014		1.00	\$0.00	\$0.00

SP14-6-4.

please advise delivery.

Thanks

Chantal

Note:

5/9/2014

e-mail CLavoie@dartaero.com



**ALPINE NON-FERROUS FOUNDRY****WORK ORDER**

8657-132ND STREET  
SURREY, B.C. V3W 4P1

Tel: (604) 596-8080 Fax: (604) 596-8045

**Sold To:** DART AEROSPACE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7  
CANADA

**Ship To:** DART AEROSPACE

Order Date		Purchase Order#	Due Date	Ship Via			Page
20-May-14		PO24153	10-Jun-14	FEDEX			1
Item#	Item Code	Description	Material	Ordered	AWB/CL	Qty Ready	Qty Sh
1 2	DART D2576	D2576 STEP CSTG		50✓			50
SP14-6-4							

**Comments**

Castings&Patterns are property of Alpine until paid in full

Jun. 5. 2014 9:55AM INPROHEAT INDUSTRIES LTD.

No. 3431 P. 3

Trialco Inc.  
900 E. 14th Street  
Chicago Heights, Illinois  
60411-3002

## Certificate of Analysis

Alloy	535.2	Heat #	HSF169
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Bundle #	Weight
→ HSF169-025	2,059
HSF169-026	2,046

### Chemical Composition

Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Pb	Sn	Sr
0.05	0.07	0.00	0.16	7.25	0.00	0.00	0.03	0.16	0.00	0.00	
Ca	Na	Be	Bi	B	P	Cd	Co	Sb	V	Zr	
0.0002	0.0001	0.0039									

We certify that the above analysis is the result obtained in our laboratory for the heat indicated.  
This shipment is free of radiation.



Jay Armstrong  
President  
Trialco Inc.

27  
7/30  
M/G/S